

4. Japanese Patent "Kokai" No. 09-220766

According to the present invention, as shown in Fig. 2, a pair of non-polar plastic sheets 10, 10 are disposed holding therebetween a third non-polar plastic sheet 10 having surfaces 10A onto which ultra-violet radiation is irradiated, and adhered to each other by means of high-frequency heater so that laminated structure can be formed.

..... The non-polar plastic sheets can be strongly adhered together, without loss of transparency, by means of high-frequency heating. Ultraviolet radiation representing a peak at a wavelength equal to or shorter than 380 nm is irradiated onto the non-polar plastic surfaces which in turn are heated to be melted by applying an electric field having a frequency equal to or lower than 100 MHz.

HIGH FREQUENCY THERMAL BONDING METHOD OF NON-POLAR RESIN AND ITS LAMINATE

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Abstract

PROBLEM TO BE SOLVED: To mutually strongly bond non-polar resins without interposing a polar resin by irradiating the surface of a non-polar resin with ultraviolet rays having a peak within a specific wavelength range and subsequently applying an electric field thereto and allowing the ultraviolet irradiated surface to generate heat to fuse the non-polar resin.
SOLUTION: The surface of a non-polar resin 10 showing characteristics such that a dielectric power factor is 0.006 or less at frequency of 1kHz-1MHz is irradiated with ultraviolet rays having a peak within a wavelength range of 380nm or less to be modified. Next, a pair of non-polar resin sheets 10, 10 are arranged so as to hold a non-polar resin sheet 10 of which both surfaces are brought to ultraviolet irradiated surfaces 10A therebetween and an electric field with frequency of 1-300MHz is applied to the non-polar resin sheets 10 by a high frequency heating apparatus consisting of upper and lower electrodes 11, 12 to perform high frequency thermal bonding.

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